In the Claims

1. (Currently amended) A joint exothermic catalyst stage (2, 3) comprising at least one shift stage (2) for catalytic conversion of a mixture of hydrogen, carbon monoxide and excess steam and a fine purification stage (3) downstream of the shift stage (2) for catalytic lowering of the residual carbon monoxide content of conversion products produced in the shift stage by selective methanization, wherein the shift stage (2) and the fine purification stage are configured as a unitary hollow body, wherein a methanization catalyst for the fine purification stage comprises ruthenium.

2. (Currently amended) The exothermic catalyst stage as claimed in claim 1, wherein a shift catalyst for the shift stage comprises at least one metal on a first support comprising a metal oxide, wherein said at least one metal is selected from the group consisting of the metals of groups IB and VIIIB of the Periodic Table of the Elements~~,~~ and rhenium ~~and cadmium~~ and mixtures thereof.

3. (Previously presented) The exothermic catalyst stage as claimed in claim 2, wherein the metal oxide comprises cerium oxide or zirconium oxide or a combination thereof.

4. (Previously presented) The exothermic catalyst stage as claimed in claim 2, wherein the shift catalyst further

comprises at least one transition metal promoter.

5. Cancelled

6. Cancelled

7. (Currently amended) The exothermic catalyst stage as claimed in claim ~~5~~ 4, wherein the second support is selected from the group consisting of a crystalline aluminosilicate, aluminum oxide, cerium oxide, titanium oxide and combinations thereof.

8. (Currently amended) The exothermic catalyst stage as claimed in claim ~~5~~ 4, wherein the hollow body has a wall space for accommodating the shift catalyst and the methanization catalyst.

9. (Previously amended) The exothermic catalyst stage as claimed in claim 8, wherein the wall space has a cross-sectional thickness which is from about 2 to 20% of an external diameter of the hollow body.

10. (Previously amended) The exothermic catalyst stage as claimed in claim 8, wherein flow channels are provided in the wall space.

11. (Original) The exothermic catalyst stage as claimed in claim 10, wherein perforations are provided between the flow channels.

12. (Previously presented) The exothermic catalyst stage as claimed in claim 10, wherein the flow channels are

arranged essentially parallel to a longitudinal axis of the hollow body.

13. (Previously presented) The exothermic catalyst stage as claimed in claim 1, wherein the hollow body has at least one central flow channel (5).

14. (Previously presented) The exothermic catalyst stage as claimed in Claim 1 further comprising a flow feed housing (10) on the outside of the hollow body, through which a cooling medium flows.

15. (Currently amended) A process for producing a joint exothermic catalyst stage which comprises the steps:

(a) providing a hollow body;

(b) dipping of the hollow body into a suspension of a first support comprising a metal oxide over a first part of a length of the hollow body;

(c) fixing of the first support on the first part of the length of the hollow body so that a first coating is produced;

(d) application of a metal to the first coating, with the metal being selected from the group consisting of the metals of groups IB and VIIIB of the Periodic Table of the Elements~~,~~ and rhenium ~~and cadmium~~, and mixtures thereof; and

(e) application of a ~~second support which comprises at~~

~~least one metal which is able to form a metal carbonyl species~~ methanization catalyst comprising ruthenium on a second support to at least a part of the length of the hollow body which is not covered by the first coating.

16. (Previously presented) The process as claimed in claim 15, wherein the first coating is calcined after application of the metal.

17. (Previously presented) The process as claimed in claim 15, wherein calcination is carried out after application of the second support.

18. (Currently amended) An apparatus for producing hydrogen, which comprises:

(a) a heated steam reforming stage (1) comprising a reforming catalyst to convert gaseous or vaporizable hydrocarbons and water into hydrogen, carbon monoxide and further reformer products;

(b) at least one shift stage (2) downstream of the steam reforming stage for the catalytic conversion of the mixture of hydrogen, carbon monoxide and excess steam leaving the steam reforming stage; and

(c) a fine purification stage (3) downstream of the at least one shift stage (2) for the catalytic lowering of the residual carbon monoxide content of the conversion

products by selective methanization, wherein a methanization catalyst for the fine purification stage comprises at least ruthenium, and

wherein the shift stage (2) and the fine purification stage (3) are configured as a ~~joint exothermic catalyst stage (2, 3)~~ unitary hollow body.

19. (Previously presented) The apparatus as claimed in claim 18, wherein the heated steam reforming stage (1) is configured as a hollow body and comprises a burner (4) which is arranged centrally in the hollow body of the reforming stage.

20. (Currently amended) The apparatus as claimed in claim 18, wherein at least one indirect heat exchanger (6) is provided between the ~~joint exothermic catalyst stage (2, 3)~~ unitary hollow body and the steam reforming stage (1) and water required for steam reforming is passed through it in countercurrent to the gaseous products coming from the exothermic catalyst stage (2, 3).

21. (Previously presented) The apparatus as claimed in claim 18, wherein the apparatus comprises only a single shift stage (2).